

CLAIMS

What is claimed is:

1. Device for gripping and transferring a ring of electrical conductors in the form of pins used to produce a pin winding, such as a winding for the stator of a rotating electrical machine; the gripping device is adapted to seize the ring in a first device for forming the ring, and to transfer the ring to a second device, such as by inserting the ring in the support element of the winding to be produced, of the type that includes a frame (13) and a number of levers for gripping (15) the ring, which are mounted to pivot on the frame between a position for gripping the ring and a release position away from the ring, and common control elements for pivoting the levers (15) of the type in which the levers (15) are levers with two arms (16, 17), one of which (16) is the control arm, while the other arm (17) has at the end elements for gripping (42, 43) the ring; the levers (15) are mounted and pivot in the frame (13) through their intermediate section (18) located between the two arms (16, 17), characterized in that the control elements to pivot the levers (15) include an element (19) in the form of a cone coaxial to the frame and have an outside peripheral surface (40) inclined in relation to the axis (X-X) of the frame, which can be moved axially in the frame (13) under the effect of a control device (21) that moves the cone (19), and characterized in that the ends (38) of the control arms (16) of the levers (15) are maintained in support on the inclined surface (40) so that the axial movement of the cone causes the levers to pivot.
2. Device according to claim 1, characterized in that the ends (38) of the control arms (16) of the levers (15) are maintained in support against the inclined surface (40) of the lever pivot control cone (19) by a seal (50) that can be stretched elastically, installed in an annular groove coaxial to the frame, formed by notches (48) the surface of which is outside the ends (38) of the control arms (16).
3. Device according to claim 1 or 2, characterized in that the levers (15) are mounted and pivot through their intermediate section (18) located between the two arms (16, 17) in a radial plane, and in that the ring is maintained by the levers (15) in a position coaxial to the frame (13).

4. Device according to any of the preceding claims, characterized in that the intermediate part (18) is formed by the middle section of the levers (15).
5. Device according to any of the preceding claims, characterized in that the intermediate part (18) of the levers (15) is mounted inside a cavity, that is generally toroidal in form, delimited by annular parts (31, 130) belonging to the frame, and in that said parts present for each lever (15) a slot (33) for the passage of the arms (156, 17) of the levers (15).
6. Device according to claim 5, characterized in that said parts form a generally toroidal section, which is hollow inside, with an internal surface (32, 132) at least partially curved along a circle arc so allow the rotation of the intermediate sections (18) of the levers (15) that have spindles for this purpose.
7. Device according to one of the preceding claims, characterized in that at least some of the ends (42) of the gripping arms (17) of the levers (15) have lateral pins (43) that ensure tightening of the straight prongs of the pins of the ring of conductors (1) of the winding to be formed against a support surface (46) of the frame (13) when the levers (15) are in their tightening position.
8. Device according to claim 7, characterized in that the ends (42) of the gripping arms (17) of the levers (15) are configured to penetrate between the straight prongs (11) of the pins of the ring, which are adjacent in the peripheral direction of the ring, when the levers (15) pivot into their gripping position.
9. Device according to one of the claims 1 to 8, characterized in that it includes handling grips (52).
10. Device according to one of the preceding claims, characterized in that the elements controlling the axial movement of the cone (19) are formed by a cylinder (21) placed between the cone (19) and the frame (13).
11. Device according to one of the claims 1 to 10, characterized in that it includes predetermined positioning elements on the first (A) and second (B) devices described above, which are

advantageously made in the form of tubular elements (55) or small columns designed to work with additional small columns (12, 64) or tubular elements installed on said devices (A, B).